PROPOSED ACTION

for the

CASTLE SPRINGS GEOGRAPHICAL AREA PLAN

Submitted to:
Bureau of Land Management
Glenwood Springs Field Office
Glenwood Springs, CO

Prepared by:
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January 2005

1.1 Introduction

The Castle Springs Geographic Area Plan (GAP) is a comprehensive and detailed plan that describes the Windsor Energy Group LLC (Windsor) proposed plan of development to drill and operate up to 98 natural gas wells in the Castle Springs geographic area approximately 5 miles south of Silt, Colorado in Garfield County. Windsor proposes to use directional drilling technology to drill most of the 98 wells from only 18 locations and reduce surface disturbance by more than 60 percent. Windsor proposes a 3- to 4-year phased drilling scenario as follows:

- Up to 12 wells in 2005 using one drill rig;
- Up to 35 wells in 2006 using up to 3 drill rigs; and
- The remaining wells in 2007 and/or 2008 using up to 5 drill rigs. The exact number of wells drilled in any given year will depend on technical results and market performance.

Over a 3- to 4-year period, Windsor would:

- develop 15 new well pads and;
- expand the 3 existing pads;
- drill and operate up to 98 wells – one vertical well and up to 7 directional wells at each pad;
- install gas and water pipelines;
- extend trunk road system by 1.71 miles by widening narrow roads and two-tracks;
- upgrade 1.88 miles of existing roads and two-tracks to access the well pads;
- construct 3.30 miles of new access roads to well pads;
- construct a new central station (compression, dehydration, tanks), and
- construct a pipeline to transport gas off-site to a sales pipeline.

The GAP encompasses portions or all of 11 sections of surface land (4,087 acres, more or less) in Township 7 South, Range 91 West. Efforts have been performed to ensure figures are as accurate as possible based on the available data, however variances may exist throughout the GAP. All of the land is under the jurisdiction of the Bureau of Land Management, Glenwood Springs Field Office (BLM).

2.1 Existing Surface Disturbance

Three wildcat wells have been drilled, completed, and shut-in on Pads T, U, and V. In addition to the wells on the three pads, 4.37 miles of access roads have been widened

and graveled by Windsor's predecessor, KLT. There are also 11.68 miles of narrow, semi-improved, and two-track roads. Of the 16.05 miles of existing roads, Windsor would only use 10.61 miles for its operations. The existing pads and roads are shown on Figure 1. Existing surface disturbance is estimated as follows:

- Existing Well Pads = 3.38 acres
- Existing Roads = 41 acres

3.1 GAP EA Process and Intent

The GAP Environmental Assessment (EA) Process is intended to provide a 3- to 4-year look at an overall development scenario instead of a case-by-case submittal of Applications for Permit to Drill (APD). The intent of the GAP process is to address site-specific and cumulative environmental impacts associated with oil and gas development within a defined geographic area. In addition, the GAP process was created to propose mitigation for potential impacts to environmental resources, such as wildlife habitat and visual aesthetics that may occur within discrete ecosystems.

The result of the GAP is a reasonable foreseeable development (RFD) scenario proposed by the operator given the current market conditions and demand for natural gas, other constraints of the company, and by environmental constraints imposed by the BLM. If fully developed, this proposal would result in up to 98 bottom-hole locations drilled at 18 surface locations (15 new locations and 3 expanded pads). Windsor expects to drill up to 12 wells in 2005, up to 35 in 2006, and the remaining in 2007 and possibly 2008. The proposed location of surface facilities and bottom-hole locations is shown on Figure 1. The total number of wells drilled would depend largely on factors out of Windsor's control such as geologic success, engineering technology, economic factors, availability of commodity markets and lease and unit stipulations and restrictions. Additional wells are expected post-2007-2008, also, but will be addressed at a later date.

The major elements of the GAP are presented below under Development (Construction/Drilling/Completion), Production (Operation and Maintenance), and Abandonment and reclamation. The proposed elements contain a standard Surface Use Plan (SUP) for gas well development. With BLM's approval, all measures discussed in the SUP will be implemented as part of Windsor's Proposed Action. Any deviations from the standard practices below are called out in (site-specific) conditions of approval.

4.1 Development

4.1.1 Year 1 – 2005

The plan of development for 2005 would include the following tasks but not necessarily in the order listed below:

1) Upgrade 0.94 miles of trunk road, from pad D to the fork in the road west of proposed pad I;

2) Upgrade 1.95 miles of existing access roads to Pads E, G and W;

3) Construct 1.45 miles of new access roads to Pads A, B, C, F, Q and the central station;

4) Construct eight new well pads (A, B, C, D, E, F, G, and Q);

5) Enlarge Pad T, U and V and improve abandoned well pad W;

6) Drill and complete new vertical and/or directional wells on Pads A, B, C, D, E, F, G, Q, T, U, V and W;

7) One drill rig and one to three completion rigs will be used during the first year;

8) Install tanks and production facilities on pads;

9) Construct new central station,

10) Evaluate feasibility of reentering the plugged and abandoned oil well on Pad W as a water disposal injection well (dependent upon completion test of the well);

11) If well on Pad W is capable of economic gas production, drill new water injection well on a well pad or the central station site to be determined;

12) Construct gas (4 to 6 inch diameter) and water pipelines (2 to 4 inch diameter) along access road rights-of-way from Pads A, B, C, D, E, F, G, Q, *T*, U, V and W to the new central station or to Pad W as applicable; and

13) Construct a 1.57 mile, 4 to 6 inch diameter pipeline from the central station that would connect to the Canyon sales pipeline along County Road 313.

4.1.2 Year 2 - 2006

The plan of development for 2006 would include the following tasks but not necessarily in the order listed below:

1) Upgrade 0.77 miles of two-tracks to a trunk road extending from the fork in the road west of proposed pad I to Pad S;

2) Construct 1.84 miles of new access roads to Pads H, I, J, K, R, and S;

3) Construct six new well pads (H, I, J, K, R, and S);

4) Drill and complete new wells on Pads H, I, J, K, R, and S; (or pads without wells)

5) Install tanks and production facilities on new pads;

6) Drill and complete 14 to 29 directional wells from developed locations on a schedule of events to be determined;

7) Up to three drill rigs would be used simultaneously to complete the drilling schedule;

8) Construct gas and water pipelines, or connect to existing infrastructure as applicable, from Pads H, I, J, K, R, and S to the central station and/or to Pad W.

4.1.3 Year 3 and 4 **– 2007** and 2008

The remaining directional wells would be drilled and completed from developed locations on a schedule of events to be determined. Up to five drill rigs would be used simultaneously to complete the drilling schedule.

5.1 Facility Construction

During the first year of development in 2005, numerous construction activities would be completed. All of these activities could occur simultaneously.

5.1.1 Trunk Road Network

The trunk road network would be extended along existing small roads and two-track roads from proposed pad D to the fork in the road west of the proposed Pad I as shown on Figure 1. Roads would be constructed with appropriate drainage and erosion control features and structures to include cut-and-fill slope and drainage stabilization, relief and drainage culverts, water bars and wind ditches similar to those described in the BLM/USFS Surface Operating Standards for Oil and Gas Development, the "Gold Book" (BLM and USFS 1989). Roads would be constructed using standard equipment and techniques. Bulldozers and/or road graders would first clear vegetation and topsoil from the ROW. The trunk road would be constructed to a ROW of 18 feet with a 12-foot wide running surface. However, at certain locations, other exceptions may be necessary. With the exception of pinyon pine, vegetation may be placed on well pad fills to help visually screen the pads. Pinyon pine would be mulched and disposed of to prevent spread of the ips beetle. Vegetation not needed for visual screening would be burned or hauled away for disposal. Where applicable, cuts would be constructed to enable the widening to 18 feet. After the top soil would be cleared and stockpiled at the nearest pad location, the road surface would be graded to slopes no more than 10 percent. Roads would be crowned and ditched to the "Gold Book" construction standards for BLM resource roads. Minimum horizontal curve radii would be 100 feet. Where terrain would not allow 100-foot curve radii, curve widening would be employed. All portions of the new trunk road would then be graveled.

5.1.2 Well Pads and Access Roads

18-foot wide access roads from the trunk road system to the proposed well pad sites would be constructed. These roads would vary in length from 117 to 4,590 feet. The access roads to well pads would be constructed to the same "Gold Book" standards as the trunk roads.

The well pad would be constructed from the native soil and rock materials present and leveled by standard cut-and-fill techniques using a bulldozer, grader, front-end loader, or backhoe. The pad would be constructed by first clearing vegetation, next stripping and stockpiling topsoil, and finally leveling the pad area considering earth balancing techniques for cuts and fills. Preliminary design calculations indicate that cuts and fills would be as high as 35 feet in some locations. In areas of deep cuts, the side slopes

may vary from the standard 2:1 Slope ratio to accommodate local topographic conditions. The tops of the cut banks may be rounded to improve the visual appearance. The size of the pads would range from 0.9 to 2.25 acres. After the pad would be finished, a locking gate would be placed on the access road near the entrance to the pad. Table 1 shows the preliminary design information for the pads.

Table 1. Castle Springs Well Pads

Pad	Dimensions (feet)	Size (acres)	Cuts and Fills at Corners (feet)				Final Design Elevation (feet)
			NW Corner	NE Corner	SE Corner	SW Corner	
A	360 X 200	1.65	F 15.9	F 6.4	C 14.1	F 4.0	7038
B	375 X 200	1.72	F 11.1	F 22.4	C 13.0	C 19.3	6922
C	375 X 200	1.72	C 10.2	C 21.0	C 28.5	F 24.7	6418
D	360 x 200	1.65	F 6.6	F 10.6	F 0.5	C 24.7	7038
E	375 x 200	1.72	F 19.7	C 22.6	C 17.2	C18.7	6782
F	375 x 200	1.72	F 9.1	F 17.0	C 19.4	C 11.3	7209
G	345 X 200	1.58	F 6.7	C 14.9	C 17.5	F 8.5	7112
H	375 X 200	1.72	C 2.8	C 24.2	C 11.8	F 22.0	7211
I	Polygon	2.25	F 10.3	F 15.3	F 23.7	F 12.7	7527
J	Polygon	2.25	C 25.5	C 22.0	F 13.9	F 12.3	7250
K	Polygon	1.74	F 17.0	F 6.5	C 12.5	C 12.0	6295
Q	345 x 200	1.58	C 15.0	F 6.6	F 26.7	C 17.2	7291
R	375 x 200	1.72	C 6.0	F 33.4	F 9.8	C 21.5	7681
S	Polygon	2.11	F 19.8	F 29.1	C 31.4	C 31.3	7695
T	Polygon	1.81	C 9.6	C 5.2	F 0.6	F 7.6	6450
U	Polygon	2.08	F 6.0	C 0.0	C 0.0	C 9.1	6837
V	360 X 200	1.65	F 12.0	C 5.4	C 17.3	F 1.7	6954
W	Polygon	0.92	F 9.0	C 13.6	F 6.6	F 15.8	7064
Central Station	Polygon	1.43	F 11.1	F 16.2	C 7.2	C 9.6	7021

C = Cuts needed
F = Fill needed

Reserve pits would be needed to contain drilling fluids. Generally, these pits would be 40 feet x 120 feet with a depth to 12 feet to allow for a minimum of two feet of free board between the maximum fluid level and the top of the berm for the containment of cuttings, drilling fluids, and chemicals. Pits would be designed to exclude all surface runoff. A fence would be constructed around the perimeter of the reserve pit to prevent wildlife from entering the pit. The fence would remain until all wells have been drilled and completed. After each well would be drilled, the fluids would be allowed to evaporate unless an alternative method of disposal is approved. Because multiple wells would be drilled at each pad, the pit would not be reclaimed until all wells have been drilled on each respective pad.

When all drilling would be complete at a pad, the reserve pit would be backfilled after allowing for evaporation of fluids. The backfilling of the reserve would be done in such a manner that the mud and associated solids would be confined to the pit and not squeezed out and incorporated into the surface materials. There would be a minimum of three feet of cover (overburden) in the pit. When work is complete, the pit area would support heavy equipment without sinking.

5.1.3 Gathering Gas and Water Pipelines

A gas gathering and produced water pipeline network would be needed to deliver gas to the central station and water to the underground injection well. Both pipelines would be buried in the same trench in the outer edge of ROW of the roads. Generally, the trench would be dug on the uphill side of a road. Construction of pipelines would proceed in a planned sequence of operations. All vehicles and trenching equipment would use the road as a construction ROW. Therefore, no extra temporary disturbance would occur during construction. The path would first be cleared of vegetation if any would still exist after road construction. The pipeline trench would be excavated mechanically to a depth that would allow approximately 4 to 5 feet of earth to be placed on the top of the pipeline. Pipe segments would then be welded together and tested, lowered into the trench, and covered with excavated material. Then, each pipeline would be pressure tested with fresh water and/or nitrogen gas to locate any leaks. Fresh water or nitrogen used for testing would be obtained off-site and transported on-site. After testing, the water would be disposed of at the water injection facility or discharged into drainages if approved by the BLM. The nitrogen would be released to the atmosphere. Generally, a mile of pipeline would be constructed in four to six days.

5.1.4 Central Station

A central station would be required to process the natural gas and boost the line pressure from about 200 pounds per square inch gage (psig) at the wellhead to about 1,000 psig for delivery to the downstream pipeline. Upon arrival of the gas at the central station wellhead pressure, the gas would first flow through a central separator to remove produced water and condensates and then flow through a central dehydration unit to further remove water in the flow prior to compression.

The central station would be 1.43 acres in size. The compressor engines would be enclosed in a building and would be sized to initially process 25 million cubic feet of gas per day (mmcfd). The separator and dehydration units would also be sized for 25 mmcfd. Two condensate tanks and two water tanks would also be placed on the facility. These tanks would be sized to accommodate 300 to 400 barrels of liquid. A chain link fence at least six feet high with a locking gate would be installed around the perimeter of the central station for security and safety reasons.

5.1.5 Transmission Pipeline

A 4 to 6 inch pipeline would be constructed from the central station to a connection with the downstream pipeline along the north side of County Road 313 in the NE/4 NW/4 of Section 20. The total 1.57-mile length of the pipeline would be on BLM-administered land.

Construction of the pipeline would proceed in a planned sequence of operations. First, a 50 to 60 foot wide ROW would be cleared of all vegetation. After construction, a 25 foot ROW would be needed for vehicles and equipment to travel and work. The pipeline trench would be excavated mechanically to a depth of 4 to 5 feet. Pipe segments would then be welded together and tested, lowered into the trench, and covered with excavated material. Then, each pipeline would be pressure tested with fresh water and/or nitrogen gas to locate any leaks. Fresh water and/or nitrogen gas used for

testing would be obtained off-site and transported on-site. After testing, the water would be disposed of at the water injection facility or discharged into drainages if approved by the BLM. The nitrogen would be released to the atmosphere. After the pipeline would be laid and tested, the trench would be backfilled with the excavated dirt. The ROW would be graded with a slight rise over the ROW to allow for settling. Reclamation (reseeding) would begin after construction would be complete. It is estimated that the time required to complete this pipeline segment would be about three to five weeks.

5.1.6 Total Surface Disturbance

After all facilities would be constructed, the total new surface disturbance would be 113.74 acres. Table 2 shows the contribution of each type of facility/road to the overall short- and long-term disturbance.

Table 2. New Surface Disturbance Proposed under the Castle Springs GAP.

GAP Action	Short-term Disturbance	Long-term Disturbance
Well Pads	52.83 Acres	47.62 Acres
Trunk Roads	12.19 Acres	12.19 Acres
Access Roads to Pads	37.80 Acres	37.80 Acres
Gas/Water Pipeline ROW	Contained within roadways	Contained within roadways
Gas Transmission Pipeline	9.49 Acres	4.74 Acres
Central Station	1.43 Acres	1.43 Acres
Total Acreage	113.74	103.78
Percent of Castle Springs Geographic Area	2.78%	2.54%

6.1 Drilling and Completion

New wells would be drilled to an average depth of 6,500 feet. A natural gas well in this GAP would require about 14-21 days to drill and approximately 45 days to complete. Multiple wells may ultimately be drilled from all pads. A vertical non-directional well would first be drilled usually followed by up to 7 directional wells at each pad. Construction, drilling and completion activities would not be permitted from December 1 through April 30 because of the big game winter range timing limitation described in Windsor's oil and gas lease agreements. By imposing the winter timing limitation on BLM leases, Castle Springs is effectively closed to construction and drilling activities during the 5-month winter period. Wording in the leases indicates that exceptions may be granted, in consultation with the BLM and the Colorado Division of Wildlife, for the last 60 days of the closure if mild winter conditions are present.

Windsor's drilling operations would be conducted in compliance with all Federal Oil and Gas Onshore Orders, and all applicable rules and regulations.

The drilling operation would be conducted in two phases. The first phase may use a small drilling rig to drill to a depth of approximately 600 –1000 feet or 50 feet below the base of any freshwater aquifers encountered. This surface hole would be cased with steel casing

and cemented in place entirely from about 600 – 1000 feet up to ground level. This surface casing would serve the purposes of providing protection for freshwater aquifers present and to contain pressure that may be encountered while drilling deeper. The BLM would be notified in advance of running surface casing and cement in order to witness these operations if so desired. This part of the drilling operation would normally take 2 to 3 days to complete.

Prior to drilling below the surface casing, a Blowout Preventer (BOP) would be installed on the surface casing and both the BOP and surface casing would be tested for pressure integrity. The BOP and related equipment will meet the minimum requirements of Onshore Oil and Gas Order No. 2, and the BLM would be notified in advance of all pressure tests in order to witness these tests if so desired. Following the use of the surface-hole rig if used, a larger drilling rig would be used to drill to a depth of about 6,500 feet. A downhole mud motor may be used to increase penetration rate. The rig would pump drilling fluids to drive the mud motor, cool the drill bit, and remove cuttings from the wellbore. In order to achieve borehole stability, minimize possible damage to the formations, provide adequate viscosity to carry the drill cuttings out of the wellbore, and to reduce downhole fluid losses, various chemicals and certain materials may need to be added to the mud system.

The directional wells will be drilled with a measurement well drilling (MWD) system. The actual bottom hole locations would be horizontally separated from the surface pad positions up to approximately 3000 feet. Downhole operations will be done with tools to facilitate proper direction and path of the well. The directional drilling is a benefit to the land that significantly minimizes the use of surface area.

The well pads will have a reserve pit to retrieve the drill cuttings from the wellbore (mainly shale, sand, and miscellaneous rock minerals) and to contain drilling fluids carried over with the cuttings. No hazardous substances would be placed in this pit.

After drilling the hole to the total depth, logging tools would be run in the well to evaluate the potential hydrocarbon resource. If the evaluation indicates adequate hydrocarbon resources are present and recoverable, steel production casing would be run and cemented in place in accordance with the well design, as approved by the BLM and any applicable COA's. The casing and cementing program would be designed to isolate and protect the various formations encountered in the wellbore and to prohibit pressure communication or fluid migration between zones.

After production casing has been cemented in place, the drilling rig would be removed and a completion rig would be moved in. The well completion consists of running a Cement Bond log to evaluate the cement integrity and to correlate (on depth) the cased hole logs to the open hole logs, perforating the casing across the hydrocarbon producing zones, and then stimulating the formation to enhance the production of oil and gas. The typical stimulation in the area is a hydraulic fracture treatment of the reservoir, in which sand with fluid is pumped into the producing formation with sufficient hydraulic horsepower to fracture the rock formation. The sand serves as a proppant to keep the created fracture open, thereby allowing reservoir fluids to move more efficiently into the wellbore.

Part of Windsor's storm water management policy may include additional engineering measures which would be implemented to construct drainage systems and culverts in order to divert water flow away from the surface location, prevent erosion, and prevent sediment loading in waterways due to pad and/or road construction as needed.

7.1 Production

Well locations would consist of wellheads, separation and/or dehydration units and aboveground condensate and produced water tanks with 300- to 400-barrel capacity. Dehydration may not be required at the pads higher than the compressor elevation because the water would gravity flow from higher elevations. A separation unit would be sized to handle the flow from all the wells on the pad. A test separator may be used at various times to measure the volume from each individual well. All production equipment would be painted to match the surrounding terrain and located to reasonably minimize visual impact. BLM would select the color for all facilities, including containment rings, at each site. Telemetry equipment would be utilized to remotely monitor well conditions and to minimize traffic to and from well locations. Automated tank gauging would be employed to minimize the risk of spills.

Produced water may be confined to the reserve pit for a period of 90 days after initial production. The tanks would be installed next to the production facilities to contain produced water and condensate during the operation period of the well. Produced water at well pads would be transported by pipeline to either the central station or the well on Pad W for underground injection disposal. It is expected that each well would produce about 6 to 7 barrels per day of condensate. Condensate would be transported to market on a 2 to 3 week schedule.

8.1 Interim Reclamation

8.1.1 Well Pads

After completion activities, Windsor would reduce the size of the well pad to the minimum surface area needed for production facilities and future operations, while providing for reshaping and stabilization of cut and fill slopes to match the original topography. All disturbed areas not necessary for drilling and production operations would undergo the following reclamation standards after completing dirt work and operations.

Some locations would require special reclamation practices such as hydromulching, straw mat application on steeper slopes, fertilizing, soil analysis to determine the need for fertilizer, seed-bed preparation, contour furrowing, watering, terracing, water barring, and the replacement of topsoil. All reclamation efforts would employ seed mixes as directed by the BLM. Pads would be fenced for the first two growing seasons or until the seeded species have established to prevent livestock/wildlife grazing pressure. Noxious weeds that may be introduced due to soil disturbance and reclamation would be treated by methods to be approved by the BLM.

9.1 Road Maintenance

The trunk and access roads would be inspected by BLM and, if necessary, maintained on a quarterly basis at a minimum to include such items as:

- Road surface grading and graveling;
- Relief ditch, culvert and cattle guard cleaning;

- Erosion control measures for cut and fill slopes and all other disturbed areas;
- Road closures in periods of excessive soil moisture to prevent rutting caused by vehicular traffic.
- Road and slope stabilization measures as required until final abandonment and rehabilitation;
- Weed control; and
- Dust abatement (as often as determined necessary by BLM and Windsor).

10.1 Workovers / Recompletion

Periodically, the workover or recompletion of a well may be required to ensure that efficient production is maintained. Workovers can include repairs to the well bore equipment (casing, tubing, rods, or pump) the wellhead, or the production facilities. These repairs would usually be completed during daylight hours and may last several days per well. The frequency for this type of work cannot be accurately projected because workovers vary well by well; however, an average may be one workover per well per year for a period of seven days. In the case of multi-well pads, space for equipment would usually be limited to the "in-use" (i.e., disturbed) area of the surface location, although it is possible that interim reclamation could be delayed. In the case of a well recompletion, a reserve pit may have to be constructed.

11.1 Abandonment and Reclamation

Upon abandonment, each borehole would be plugged, capped, and its related surface equipment would be removed. Subsurface pipelines would be plugged at specific intervals and site contouring would be accomplished using appropriate heavy equipment. All surface soil disturbances would be reseeded with native vegetation, the mix to be determined by the typical vegetation surrounding the specific well site. Well site reclamation would be performed and monitored in accordance with the 1998 GSRA Reclamation Policy, including control of noxious weeds. Further information on reclamation standards is available in Appendix I of the 1999 Oil and Gas Leasing and Development EIS. One of the basic goals of the policy is to "establish desirable (seeded and native) vegetation to set the stage for the natural process to restore the site". Consequently, one of the goals of the proposed action is to accomplish as much reclamation on each well pad during the life of the well as possible, even on those pads with a large final reclamation or "in use" area. Unreclaimed areas or reclaimed areas that do not meet the objective of three-to-four years of sustained reclamation (known as "operator complete") would undergo the reclamation re-treatment measures described in the Surface Use Plan (Appendix A). Windsor would also meet the BLM bonding requirements. Additional bonding would be provided for sites with extremely difficult reclamation conditions if repeated reclamation attempts have been unsuccessful, or final reclamation cannot be completed with standard reclamation measures.

A Sundry Notice would be submitted by the operator to the BLM that describes the engineering, technical, or environmental aspects of final plugging and abandonment. It would describe final reclamation procedures and any mitigation measures associated with the final reclamation performed by the operator. The BLM's standards for plugging would be followed. A configuration diagram, a summary of plugging procedures, and a job summary with techniques used to plug the well bore (e.g., cementation) would be included in the Sundry notice.